

Claims

What is claimed is:

- 1 1. An apparatus, comprising:
 - 2 a microphone;
 - 3 a codifier coupled to the microphone;
 - 4 a central processing unit coupled to the codifier to control the codifier
 - 5 to convert an analog signal sensed by the microphone into a digital signal;
 - 6 at least one alert generator coupled to the central processing unit for
 - 7 generation of the at least one alert signal;
 - 8 a memory coupled to the central processing unit for storage of the at
 - 9 least one predetermined value; and
 - 10 a programmable storage device readable by the central processing
 - 11 unit, the programmable storage device tangibly embodying a program of instructions
 - 12 executable by the central processing unit, wherein the program of instructions and
 - 13 the at least one predetermined value define an alert sequence definition.
 - 14 the central processing unit responsive to the digital signal and the alert
 - 15 sequence definition such that the central processing unit will determine an alert
 - 16 signal such that the central processing unit generates at least one control signal for
 - 17 the at least one alert generator to generate the alert signal.
- 1 2. An apparatus as recited in claim 1, further comprising:
 - 2 a transceiver coupled to the central processing unit to communicate
 - 3 with an external device; and
 - 4 the central processing unit responsive to a transmitted signal of the
 - 5 external device received by the transceiver such that the central processing unit will
 - 6 generate a control signal for the codifier to convert an analog signal sensed by the
 - 7 microphone into a digital signal.
- 1 3. An apparatus as recited in claim 2, further comprising:
 - 2 a decoder coupled to the central processing unit; and

3 a speaker mounted in the housing, the speaker coupled to the
4 decoder;

5 the central processing unit responsive to a transmitted signal of the
6 external device received by the transceiver such that the central processing unit will
7 generate a control signal for the speaker to generate a signal and a control signal
8 for the codifier to convert the reflected signal sensed by the microphone into a digital
9 signal;

10 the central processing unit responsive to the reflected signal to
11 determine strength of the reflected signal such that the strength is compared with at
12 least one of the at least one predetermined threshold stored in memory to determine
13 an optimum alert signal.

1 4. An apparatus as recited in claim 3, wherein the at least one alert
2 generator includes:

3 a display mounted in the housing and coupled to the central
4 processing unit, the display having at least one feature for generation of a visual
5 alert signal.

1 5. An apparatus as recited in claim 3, wherein the at least one alert
2 generator includes:

3 an audio alert generator coupled between the central processing unit
4 and the speaker for generation of an audible alert signal.

1 6. An apparatus as recited in claim 5, wherein the central processing unit
2 responsive to the alert sequence definition, adjusts the type of audible alert signal.

1 7. An apparatus as recited in claim 5, wherein the central processing unit
2 responsive to the alert sequence definition, adjusts the volume of audible alert
3 signal.

1 8. An apparatus as recited in claim 5, wherein the central processing unit
2 responsive to the alert sequence definition, adjusts the frequency of audible alert
3 signal.

1 9. An apparatus as recited in claim 5, wherein the central processing unit
2 responsive to the alert sequence definition, adjusts the interval of time for silence
3 between a first and a second audible alert signal.

1 10. An apparatus as recited in claim 1, wherein the at least one alert
2 generator includes:
3 a tactile alert generator coupled to the central processing unit for
4 generation of a tactile alert signal.

1 11. An apparatus as recited in claim 1, further comprising:
2 at least one manually actuated user input coupled to the central
3 processing unit;
4 wherein the programmable storage device responsive to the at least
5 one manually actuated user input to alter the last alert signal generated.

1 12. An apparatus as recited in claim 1, further comprising:
2 at least one manually actuated user input coupled to the central
3 processing unit;
4 wherein the programmable storage device responsive to the at least
5 one manually actuated user input to alter the alert sequence definition.

1 13. An apparatus as recited in claim 3, further comprising a housing
2 wherein the microphone, the speaker, the transceiver, and the at least one manually
3 actuated user input are mounted in the housing.

1 14. An apparatus as recited in claim 1, wherein one of the at least one
2 predetermined value includes at least one high frequency noise range.

1 15. An apparatus as recited in claim 1, wherein one of the at least one
2 predetermined value includes at least one low frequency noise range.

1 16. A apparatus as recited in claim 1, wherein the program of instructions
2 includes speech recognition processing instructions.

1 17. An apparatus as recited in claim 1, wherein the program of instructions
2 includes neuron network processing instructions.

1 18. An apparatus as recited in claim 1, further comprising a radio link
2 transceiver coupled to the central processing unit, the radio link transceiver
3 positioned in the housing to communicate with a base station, wherein a transmitted
4 signal from the base station, the predetermined values, and the program of
5 instructions define the alert sequence definition.

1 19. An apparatus as recited in claim 18, wherein the radio link transceiver
2 uses a short-range, cable replacement, radio technology such as Bluetooth™.

1 20. An apparatus as recited in claim 1, further comprising a light sensor
2 coupled to the central processing unit to sense light external to the portable wireless
3 communication device, wherein the sensed light, the predetermined values, and the
4 program of instructions define the alert sequence definition.

1 21. An apparatus as recited in claim 1, further comprising a motion sensor
2 coupled to the central processing unit to sense motion exerted on the portable
3 wireless communication device, wherein the sensed motion, the predetermined
4 values, and the program of instructions define the alert sequence definition.

1 22. An apparatus as recited in claim 1, further comprising a temperature
2 sensor coupled to the central processing unit to sense temperature external to the
3 portable wireless communication device, wherein the sensed temperature, the
4 predetermined values, and the program of instructions define the alert sequence
5 definition.

1 23. An apparatus as recited in claim 1 wherein, the predetermined values
2 includes a temperature, motion, high frequency noise, and low frequency noise
3 range.

1 24. A method of generating an optimum alerting sequence for a wireless
2 communication device having a central processing unit, a codifier, a memory, a
3 programmable storage device tangibly embodying a program of instructions,
4 plurality of alert generators, comprising the steps of:
5 detecting, by the central processing unit, an incoming call;
6 sending a control signal to the codifier coupled to a microphone to
7 receive the analog signal sensed at the microphone;
8 converting the analog signal to a digital signal;
9 retrieving a predetermined set of values and coefficients from
10 memory;
11 processing the digital signal by the central processing unit to
12 determine an optimum alerting sequence using the predetermine set of values,
13 coefficients, and the digital signal as inputs for the program of instructions tangibly
14 embodied in the programmable storage device; and
15 generating an alert signal based upon the output of the program of
16 instructions.

1 25. A method as recited in claim 24, wherein the program of instructions
2 includes speech recognition processing instructions to process a speech pattern
3 recognized in the digital signal as input to determine the optimum alert sequence.

1 26. A method as recited in claim 24, wherein the program of instructions
2 includes neuron network processing instructions to determine the optimum alert
3 sequence.